

Micro-Channel Hydrogen Purifiers



Power+Energy[™]
Fueling the Hydrogen Economy

PE9000MZ[™] Series H2 Purifiers



Ultra-Pure hydrogen from any source

- Absolute Purity >99.9999999%
- PPT levels of O₂ + H₂O for LED's
- PPT levels of N₂ for PV and SiC

Protects from variation in supply purity

Lower H2 supply chain cost

- Lower Cost of Ownership
 - vs. Catalytic + Getter
 - vs. Cryogenic Purifier
 - vs. Other Pd Purifiers
- No Regeneration or Consumables

High Flow Capacities

- 1 NM³/hr to 320 NM³/hr

- **Rugged High Reliability Design**

- **Compact Cabinet Design**

- N₂ Purged Controls Cabinet with UPS for Power Failure Protection
- Separate vented process cabinet
- Continuous monitoring for H₂ and ventilation flow

- **Remote monitoring and control**

Power+Energy features a full line of Micro-Channel H2 purifiers to support any high purity hydrogen requirement from bench-top to fab-wide

All P+E H2 Purifiers Feature

Advanced Micro-Channel Membrane Technology

Deliver 99.9999999% H2 from any hydrogen source

Support the most demanding purity requirements

Ideally suited for compound semiconductor and other advanced processes including LED, GaN, SiC and Photovoltaic Fuel Cells and related H2 needs

PE9000MZ™ Series

Fab Wide Capacity

Single Cabinet

N2 purged for

Class 1 Div 2 operation



PE9000S™ Series

Tool or Lab Wide

Compact Cabinet

Fully automated

Centralized or Point of use



PE2100P™ Series

Bench Top Supply

Low Flow Systems

Same Purity Output

Ideal for Laboratory Applications



		PE9000MZ Series	PE9000S Series	PE2100P Series
Hydrogen	Flow Capacities ¹	5 - 320 NM3/hr	2 - 80 NM3/hr	5-30 sspm
	Max Inlet Pressure	250 psig (1.72 MPa) ²	250 psig (1.72 MPa) ²	200 psig (1.38 MPa)
	Inlet H2 Purity	99.95% typical ³	99.95% typical ³	99.95% typical ³
	Outlet H2 Temp	5-10 C° above inlet	5-10 C° above inlet	5-10 C° above inlet
	Outlet H2 Purity	99.9999999%	99.9999999%	99.9999999%
	Total Impurities	< 1 ppb	< 1 ppb	< 1 ppb
N2 Purge	Cabinet	Yes N2 purged at 26 Pa	No -	No -
	Process	Startup + Shutdown 75-90 psig (0.5-.06 MPa) N2 flow~1% of H2 flow	Startup + Shutdown 75-90 psig (0.5-.06 MPa) N2 flow~1% of H2 flow	Startup + Shutdown 75-90 psig (0.5-.06 MPa) N2 flow~1% of H2 flow
	Pneumatics	Air or N2	75-90 psig (0.5-.06 MPa)	75-90 psig (0.5-.06 MPa)
Power		200-240 VAC - 50/60 Hz	200-240 VAC - 50/60 Hz	100-240 VAC 50/60 Hz
	20 NM3/hr	2.88 kW Peak (Startup) 0.7 kW at Max Flow	2.88 kW Peak (Startup) 0.7 kW at Max Flow	
	60 NM3/hr	4.4 kW Peak (Startup) 1.1 kW at Max Flow	4.4 kW Peak (Startup) 1.1 kW at Max Flow	
	180 NM3/hr	16 kW Peak (Startup) 4 kW at Max Flow		
Dimensions	Width	32" (813 mm)	21" (540 mm)	10" (254 mm)
	Depth	24.7" (628 mm)	18" (458 mm)	10" (254 mm)
	Height	74.5" (1893 mm)	24" (626 mm)	8" (203 mm)
Weight		750 lbs - 900 lbs (340 kg - 409 kg)	110 lbs (50 kg)	15 lbs (7 kg)

¹ rated at 200 psig in / 0 psig out

² up to 350 psig (2.4 Mpa) optional

³ Lower inlet purities are available

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